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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,571	03/29/2004	Peter W. Krause	1200209R	2072

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POLYONE CORPORATION
33587 WALKER ROAD
AVON LAKE, OH 44012

EXAMINER	
SANDERS, JANIS C	

ART UNIT	PAPER NUMBER
1732	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,571	KRAUSE ET AL.	
	Examiner	Art Unit	
	Janis Sanders	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *9 and 10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/18/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Restriction/ Election

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-8, drawn to a method, classified in class 264, subclass 176.1.

II. Claims 9-10, drawn to an article, classified in class 425, subclass 190.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make another and materially different product. The extrusion method can be used to produce a carbonized composite for semi-conductive or electrical equipment.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with John H. Hornickel on 11 July 2007 a provisional election was made without traverse to prosecute the invention of the method, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS forms 1449 filed 18 June 2004, is attached to the instant Office action.

Claim Rejections - 35 USC § 112, second paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "a profile speed at a speed of as much as about thirty percent (30%) faster than the extrusion speed for the conventional dry blend formulation." The phrase "as much as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). It is also rendered unclear if the limitation refers to the speed the extruder operates at, or the speed the extrudant leaves the extruder. For the purpose of examination, it will be understood that the extrusion speed is the output rate of the extrudant, and the extrusion speed can have an increase of 0 to 30% in extruding the replacement polyvinyl alcohol compound.

Clarification and/or correction are required.

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Georgiana et al. (US 3,567,669).

As required by claim 1, Georgiana (US 3,567,669) discloses polyvinyl resin powder compositions, also known as "dryblends" or "powder blends" are typically prepared by physically blending one or more polyvinyl resins together with various other additives (claim 1a) such as, e.g., stabilizers, plasticizers, impact modifiers, pigments, etc. (claim 6) which normally are compounded with polyvinyl resins to provide the desired physical and chemical properties to finish articles fabricated thereform (col. 1, lines 45-54).

In example 2, the reference discloses a conventional polyvinyl chloride resin powder blend as long used in the art, has a bulk density of approximately 0.51g/cc (col. 11, lines 15-18).

Then a rigid resin composition of the invention, of relative viscosity 2.35 (col. 10, lines 64) and density 0.693 g/cc (col. 11, lines 10-11)), extrudes at a rate of 100 lbs./hr, while the conventional powder blend extrudes at a rate of 67.5 lbs/hr (col. 11, lines 24-28).

It is in the view of the examiner that density and relative viscosity are correlated to the inherent viscosity of poly(vinyl chloride) polymer. The given values correlate to an increased inherent viscosity of the replacement poly (vinyl chloride) polymer with the range of 3-30%, more specifically about 10%. [claim 1b and 3]

Thus the composition of this invention can be extruded at a rate 0 - 48% faster than the conventional powder blend (col. 11, lines 24-28). [claim 1c]

Georgiana further discloses a densified rigid poly(vinyl chloride) resin, a completely homogeneous (homopolymer) as required by claim 2. (col. 2, lines 46-51).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Georgiana et al. (US 3,567,669) in view of Hawrylko (US 5,198,170).

Georgiana et al. teaches the method of claims 1-3 and 6, as discussed above.

Georgiana et al. does not teach of polyvinyl chloride powder particle size of 30-400 μm. The reference further does not teach of a 5-zone twin-screw extruder with a L/D ratio of about 26:1.

Hawrylko (US 5,198,170) teaches a method for extrusion of powered polyvinyl chloride (PVC) compounds that may be a polyvinyl chloride homopolymers (claim 2) or copolymers of

polyvinyl chloride comprising one or more comonomers copolymerizable therewith (col. 8, lines 17-20).

Regarding claims 4 and 5, Hawrylko teaches the compound comprising a PVC resin has a particle size average in a range of from about 50 to 125μm (col. 5, lines58-60).

Regarding claim 6, Hawrylko teaches various process aids, fillers, pigments and reinforcing materials can be utilized (col. 10, lines 41-46).

Regarding claim 7, Hawrylko teaches the invention is achieved by extrusion, either single or multi-screw extrusion (col.5, lines 41-44).

Regarding claim 8, Hawrylko teaches in Tables 1 and 2, the use of an extruder with 5 zones within the extrusion process.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Georgiana et al. to include the desired poly(vinyl chloride) particle size and equipment used for the extrusion process as taught by Hawrylko. One of ordinary skill would have been motivated to do so to address parameters that would effect and optimize the resulting extrudant. Because both references are concerned with poly(vinyl chloride) resin powder composition processing at an accelerated rate, one would have a reasonable expectation of success from the combination.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Georgiana et al. (US 3,567,669) in view of Hawrylko (US 5,198,170), in further view of Igwe (US 5,973,013).

Georgiana et al. in view of Hawrylko teaches the method of claims 1-7, as discussed above.

Georgiana et al. in view of Hawrylko does not teach of a 5-zone twin-screw extruder with a L/D ratio of about 26:1.

Igwe teaches in examples 4-6, a model ZDS-K28II 26:1 L/D co-rotating twin screw extruder (col. 6, lines 16-20). Table 6 displays 5 zones of the extruder (Feed Zone, Melt Zone, Mixing Zone, Compression Zone, and Die).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Georgiana et al. in view of Hawrylko, to include a 5 zone, 26:1 L/D ration twin screw extruder as taught by Igwe. One of ordinary skill would have been motivated to do so to optimize the resultant extrudant. Because all references are concerned with the melt extrusion of copolymers with a twin-screw extruder, one would have a reasonable expectation of success from the combination.

Remarks

8. No claim is allowed.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. King et al. (US 3,666,700), Bullman (US 3,533,978), and Garrison, Jr. (US 4,121,016) disclose methods of producing polyvinyl chloride articles.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis Sanders whose telephone number is 571-272-7145. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Janis Sanders
Patent Examiner
Art Unit 1732

7/19/07

CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER